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WHAT OUGHT THE TARIFF RATES TO BE ON IRON AND STEEL MANUFACTURES?

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The question, what ought any tariff rate to be? is one that cannot be satisfactorily answered in the absence of an accepted criterion of the "ought"—an understanding to whom exists the obligation implied in the word, and how that obligation was incurred. Without such a criterion and understanding our hands are tied at the very outset. We might listen to those who would tell us that the paramount obligation of government is to vested rights—however they may have come to be vested—and so be convinced that no tariff ought to be changed without the free consent of the beneficiary. We might be persuaded by those, on the other hand—fully equal to our first supposed advisers in patriotism and intelligence—whose fundamental maxim is that government has no right to limit the liberty of any citizen further than is necessitated by the equal rights of other citizens, that any tariff rate at all, higher than is needed for the bare existence of government, is an infringement on the people's rights. From either of these antagonistic points of view the question is already settled, without argument. The fact that it is proposed for discussion evidently indicates some intermediate criterion, which should be strictly observed and distinctly stated.

For the purpose of this discussion I shall therefore assume, without undertaking to prove them, the following postulates:

(1) The continued production of iron ores, of pig iron, of ingot steel, and of iron and steel manufacturers in the United States, in some such quantity as at present, is desirable.

(2) Therefore, any diminution of the tariff duty on such products, as will by cutting down the profits of production considerably reduce the amount produced, is not desirable.

(3) But any diminution that will not considerably reduce production is desirable in proportion as it makes the completed manufactures cheaper to the consumer.

(4) Accordingly, the tariff rates ought to be reduced to the extent thus defined, no further.

In the practical application of these assumed principles, we meet with the difficulty that the information particularly required can be had only by experiment, and that no experiment under precisely corresponding conditions has been made. But we can pretty safely infer, other things being equal, that if the cost of production in this country exceeds that in the best-equipped competing country by a certain amount, that product will continue to be produced if the duty is not reduced below that amount; that if any product can be sold at a certain price, more of it will be in demand at a lower price; and that the more widely distributed the source of supply of any commodity, the less subject its price will be to sudden fluctuations.

Inquiring what is the excess cost of production of iron and steel in this country, we find that for a full half of it no excess exists, and that for a considerable proportion there is a large difference the other way. To the cost of pig iron, as produced by the United States Steel Corporation, we have some concurrent testimony: first, for 1899, that of a paper prepared for the British Institution of Civil Engineers by the Messrs. Head, afterward quoted with approval by Mr. J. S. Jeans, secretary to the British Iron Trade Association. According to which the cost of a ton produced in Pittsburg was 32½ shillings, or \$7.90, while that produced at Middlesbrough cost 52 shillings 2 pence, or \$12.70—fully 60 per cent higher; second, the independent calculation in Mr. J. Russell Smith's recent article on "Cost and Profits of Steel-Making," written in 1907, according to which the cost of material is \$7.00 and the entire cost \$8.00 for a ton of pig iron. I have reviewed Mr. Smith's figures, and, though prepared to admit that his \$3.00 for ore may be somewhat too small, even though the corporation owns the mines and the transporting railways and steamer-lines, I am sure that his \$4.00 for coke and limestone is decidedly too large. In the English estimate for 1899 the ore slightly exceeded \$5.00, while the coke and limestone together amounted to but \$1.80 at Pittsburg. True, coke sells anywhere from \$1.00 to \$4.00 a ton, or even higher in feverish states of the market, but its cost is another story. In fact, a properly managed coke oven will pay for all the cost of its raw material and labor, repairs and depreciation, with its

by-products, gas, gas-tar and ammonia, leaving the coke without cost. Mr. Smith himself proves this by his figures, and afterwards appears to forget it in his estimate of cost. He would be quite right in rating this material as highly costly, calculating on the wasteful methods of preparation that have been heretofore too common in Pennsylvania. But with improved methods, the corporation owning the coal mines and the ovens, he allows too much for it. For pig iron produced under the best conditions, as by the Steel Corporation or the Jones and Laughlin works, we might estimate the cost of iron ore at \$3.75, instead of \$3.00; that of coke and limestone at \$1.75 instead of \$4.00, "while the labor and maintenance charges add but another dollar," making \$6.50 in all, which appears to me a decidedly closer estimate than \$8.00.

This, it must not be forgotten, is confessedly a "bottom figure;" the top figure for cost is naturally the market price of the iron, which is usually \$15 to \$20 or over; and there may be all grades between. For an average cost we must refer to the figures of the United States census of manufactures, which show for 223 establishments engaged in the manufacture of pig iron in 1900, reduced to 190 in 1904, the aggregate expenditures for salaries and wages, materials and miscellaneous, were respectively \$159,755,409 and \$210,555,407, producing 14,447,791 and 16,623,625 gross tons of iron, which therefore cost (without allowance for depreciation or repairs of plants) \$11.06 and \$12.67 per ton. Of this total increased cost of \$50,800,058, about 69 per cent (\$35,042,447) was increased cost of ore consumed, and over 93 per cent (\$47,438,263) was increased cost of all materials.

Comparing the British cost of production at Middlesborough, quoted above, with the average just obtained from United States census data, we find a correspondence practically exact for 1904. If we assume British costs unchanged since 1899, and other things equal, it would follow that more than half of the United States production in 1904 could have been sold without loss at free-trade prices. But there is no exact correspondence between the figures used in this comparison. The English figures include a small allowance for repairs, etc., which the United States census figures have not. But a more important difference between them is the date to which they apply, in years of rapidly advancing prices. In that view, the Middlesborough \$12.70 for 1899 ought not to be com-

pared with the census \$12.67 for 1904, but rather with the \$11.06 for 1900.

The cost of labor at the furnace per ton of product is an item of some interest. The English estimates for 1899 put this at forty-nine cents for Pittsburg and seventy-three cents for Middlesbrough, the difference in our favor being due of course to greater use of machinery. Mr. Schwab is quoted by Secretary J. S. Jeans, of the British Iron Trade Association, as finding "that the best record for labor, etc., at the blast furnace per ton of pig iron was 41.1 cents, which included . . . time-keeping and superintendents' salaries," etc. This was for the Edgar Thomson Works in 1902. Mr. Frank Popplewell, of Manchester, in a "Gartside Scholarship" report on a tour in this country in 1904, says of one of Messrs. Jones and Laughlin's furnaces in Pittsburg: "The labor charges for operating this plant were stated to be forty cents per ton of iron; for repairs twelve cents per ton, and the total charges of labor, repairs, interest on investment, and depreciation, about \$1.00 per ton. This figure will not differ greatly at any of the works in the Pittsburg district where the same state of efficiency holds in respect to equipment." Mr. J. Russell Smith uses the same estimates identically, as seen above, for the Steel Corporation's costs, apart from material. So much for the most favorable figures; but figures less favorable could be given in abundance. In the same article Mr. Smith speaks of his investigation of "a comparatively small blast furnace," at which the labor cost "was for a recent year \$1.17 per ton," and explains the difference by "the fact that the economical Pittsburg furnace did not make its pig iron into pigs," but carefully observed that by sending it "a splashing liquid straight from the blast furnace to the converter, there is a saving of \$1.50, which would have been spent in making pigs and again melting them." This cost saved, of "making molds for the pig iron, running it into the molds, breaking it up, piling it, handling it, and finally loading it into cars," is very largely labor-cost. In Pennsylvania in 1906, by the report of the State Bureau of Industrial Statistics, 11,244,292 gross tons of pig iron were made at a total pay-roll expense of \$12,063,566, or \$1.07 per ton, which may or may not include salaries and office expenses. The wages per ton for the entire United States in 1904, by the census report, were \$1.14, or, when salaries of officers, superintendents, foremen and clerks

are included, \$1.31; the corresponding figures for 1900 having been \$1.28 and \$1.44. Three points seem to be made out by this examination: (1) That labor cost at the furnace is extremely variable in the United States; (2) that it is on the whole progressively diminishing, although the total cost of the iron is increasing; (3) that it forms but a minor part of the total cost of production, ranging from 5 or 6 per cent upward, about 10 per cent as an average.

In stating my fundamental assumptions I intentionally left the admissible reduction of production, by lowered tariff rates, somewhat indefinite. Reasonable men may widely differ as to the amount, some dreading the effect of any unsettlement of present conditions and others trusting confidently to the law of supply and demand and to the adaptability and ingenuity of our fellow-citizens to weather any changes. Taking the figures exactly as they stand, and supposing pig iron admitted free of duty without another change in the tariff, the evidence that it would continue to be produced in the country at a price from \$2.00 to \$4.00 lower than at present, to an amount never equaled here until 1901 (that is, more than half the present production), and without serious inconvenience to the laborers of the country, amounts to complete demonstration. It would be quite possible to add some weighty reasons for the belief that the proportion of iron so produced would speedily increase, and that after a few years the temporary backset would be no longer noticeable; but it would be unnecessary, for no one proposes to alter the tariff rates in that way. Any reduction of the rates on pig iron would be accompanied by a provision admitting iron ore free, which would make no practical difference to the corporations owning both furnaces and mines, but would be a decided encouragement to the furnaces for which ores have to be bought. It would probably be accompanied, also, by reduced rates on steel, and iron and steel manufactures, which would doubtless increase the demand for machinery and all iron ware in the United States, and thus arrest any alarming fall in the price of the crude metal. If carried out in these ways, I am convinced that the effect of an entire removal of the duties on pig iron would be altogether for good, but I would cheerfully consent to abide by the results if half were removed now and the remaining half as soon as the first step should be clearly recognized as beneficial.

With regard to the cost of production of ingot steel, there is

very little to say further than Mr. J. Russell Smith has said in his *Journal of Economics* article. He lays stress, justly enough, on the wide differences for different establishments, and calculates the cost of conversion in Pittsburg at from \$3.50 to \$4, admitting that it might reach \$7.00 per ton for plants of less efficient construction, equipment, and operation." This gives, as a bottom figure, but \$10 for steel ingots, adding to which \$2.00 as the minimum for rolling steel rails, shows that the Steel Corporation could produce the rails for as little as \$12 under the most favorable circumstances; or, say, from \$12 to \$15 as a rule. A \$16 price would assure the trust a moderate profit, whereas the price it asks is \$28. For years our tariff was \$28, but it has now, by successive reductions, fallen to \$6.72. Since the English price is not less than \$20, and since for twenty years the cost of manufacture has been less in Pittsburg than anywhere on the globe, there would be no harm in putting steel rails on the free list.

Although most machinery and manufactures of iron and steel could by this time be admitted free without more than temporarily disturbing their production in the United States, so abrupt a change is not recommended at once. With free ores and pig iron, a general removal of half the duty could be made now without appreciable embarrassment of manufacturing, and this could be followed, gradually, by farther reductions. Free trade is the condition of stable equilibrium, toward which every adjustment should aim, be it slower or swifter in its action.

It is objected by defenders of the present high-tariff system that a lowering of duties, while it would only diminish the profits of the great corporations, would drive smaller producers out of business altogether, and leave our manufacturing more in the hands of the trusts than ever. There is much truth in this. Competition is always driving trades from those less able, to those more able, to stand it. The practical question is: how much is this country prepared to pay, out of the daily earnings of its people, to keep these smaller producers in business? They can be kept going, as long as we are willing to reach into our pockets for the means. But the necessity, or even the desirability, of maintaining people in doing anything in which others can serve the public more effectively, I did not include among my fundamental postulates.